LOCKHEED MARTIN SERVICES GROUP
ONE STERLING PLAZA
10101 SOUTHWEST FREEWAY, SUITE 500
HOUSTON, TEXAS 77074

MEMORANDUM

DATE: February 26, 1998

TO: Dr. Melvin Ritter, ESAT RPO, Region VI

FROM: Dr. Tom C.H. Chiang, ESAT Team Manager, Region VI

SUBJECT: CLP Data Review

REF: TDF # 6-8166A, ESAT File # I-2170
ESAT Contract No. 68-D6-0005

Attached is the data review summary for Case # 25969
SDG # MFHL94
Site DOYLE F J
TRANSFORMERS

COMMENTS:

I. CONTRACTUAL ASSESSMENT OF DATA PACKAGE:

The package was contractually compliant as determined by CCS and the Regional review.

II. TECHNICAL/USABILITY ASSESSMENT OF DATA PACKAGE:

A total of 456 results were reviewed for this data package. The package is technically provisional because of the following problems.

A. The reviewer qualified approximately 18 percent of the results.

B. The antimony matrix spike recovery was below the QC limit.

C. Six selenium analyses had coefficients of variation greater than 20 percent.

911487

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 25969	SITE DOYLE F J TRANSFORMERS
LABORATORY AATS	NO. OF SAMPLES 19
CONTRACT# 68-D5-0141	MATRIX soil
SDG# MFHL94	REVIEWER (IF NOT ESD) ESAT
SOW# RAS ILM04.0	REVIEWER'S NAME Mike Fertitta
ACCT# 8FAXJN27 SF# FAXU1D	COMPLETION DATE February 26, 1998

SAMPLE NO.'s:

MFH-L94	MFH-L99	MFH-M03	MFH-M07	MFH-M11
MFH-L95	MFH-M00	MFH-M04	MFH-M08	MFH-M13
MFH-L97	MFH-M01	MFH-M05	MFH-M09	MFH-M14
MFH-L98	MFH-M02	MFH-M06	MFH-M10	

DATA ASSESSMENT SUMMARY

	ICP	HG	CN
1. HOLDING TIMES	O	O	O
2. CALIBRATIONS	O	O	O
3. BLANKS	O	O	O
4. MATRIX SPIKES	M	O	O
5. DUPLICATE ANALYSIS	M	O	O
6. ICP QC	M		
7. FAA QC			
8. LCS	O	O	O
9. SAMPLE VERIFICATION	O	O	O
10. OTHER QC	O	O	O
11. OVERALL ASSESSMENT	M	O	O

O = Data had no problems.
M = Data qualified because of minor or major problems.
Z = Data unacceptable.
N/A = Not applicable.

ACTION ITEMS:

AREAS OF CONCERN: The antimony matrix spike recovery was less than 75 percent. The aluminum RPD was greater than 35 percent for the laboratory duplicate analyses. Serial dilution percent differences exceeded 10 percent for calcium and zinc. ICP coefficients of variation exceeded 20 percent for six selenium analyses.

NOTABLE PERFORMANCE: The package was two days early for the 35-day contractual data package turnaround time.

CASE 25969 **SDG** MFHL94 **SITE** DOYLE F J TRANSFORMERS **LAB** AATS

COMMENTS: The laboratory analyzed 19 soil samples for total metals and cyanide by SOW ILM04.0. The sampler identified sample MFH-M05 as the laboratory QC sample and samples MFH-L97/MFH-M02 and MFH-M03/MFH-M04 as field duplicate pairs. The data package arrived at EPA 2 days early for the 35-day contractual data package turnaround time.

Approximately 60 percent of the reported results were above the CRDL's. The data package is technically provisional because of problems with a matrix spike recovery, a laboratory duplicate RPD, serial dilution percent differences, and ICP coefficients of variation. The technical usability of the sample results is discussed below, and any qualifications are listed in the Data Summary Table.

The reviewer conducted an Evidence Audit for the Complete Sample Delivery Group File (CSF), and the results are reported in the Evidence Inventory Checklist.

NOTE: THE FOLLOWING REVIEW NARRATIVE ADDRESSES BOTH CONTRACTUAL ISSUES (BASED ON THE STATEMENT OF WORK) AND TECHNICAL ISSUES (BASED ON THE NATIONAL FUNCTIONAL GUIDELINES). THE ASSESSMENT MADE FOR EACH QC PARAMETER IS SOLELY BASED ON THE TECHNICAL DATA USABILITY, WHICH MAY NOT NECESSARILY BE AFFECTED BY CONTRACTUAL PROBLEMS.

1. **Holding Times:** Acceptable. Sample preservation met contractual requirements. The laboratory analyzed the samples within the contractual holding time limits. Technical holding time limits have not yet been established for soil samples.

2. **Calibrations:** Acceptable. Instrument calibrations met contractual requirements. CRDL standard analyses indicated acceptable instrument performance near the CRDL's.

3. **Blanks:** Acceptable. All laboratory blanks met contractual criteria although the laboratory reported 10 analytes in the blanks. Laboratory blank concentrations for four analytes affected sample results below the CRDL's and one mercury and two arsenic results above the CRDL's. The arsenic results are biased low for samples MFH-M13 and MFH-M14, and the mercury result should be considered undetected for sample MFH-M14.

   Rinsates: The samples in this SDG may be associated with rinsate samples MFH-L25 and MFH-L96 in SDG MFH-L25. Rinsate

3. **Blanks (continued):**

sample MFH-L25 contained zinc above the CRDL and eight other analytes at concentrations below the CRDL's. The sodium and zinc concentrations in sample MFH-L25 were due to preparation blank concentrations of these analytes. Rinsate sample MFH-L96 contained lead at a concentration above the CRDL (2.4X) and 10 other analyte concentrations below the CRDL's. The aluminum, arsenic, calcium, and zinc concentrations in sample MFH-L96 were due to calibration or preparation blank concentrations of these analytes. ESAT does not have information identifying the samples associated with the rinsate samples, so no evaluation for potential effects can be performed.

4. **Pre-digestion/Pre-distillation Matrix Spike Recovery:** Provisional. The reviewer qualified the antimony sample results as estimated and biased low because the matrix spike recovery was below the QC limit.

5. **Duplicate Analysis:** Provisional. The reviewer qualified the aluminum sample results as estimated because the duplicate difference exceeded the technical QC limit. The chromium difference exceeded the SOW QC limit but was below the technical limit, so chromium sample results were not qualified.

6. **ICP Quality Control:**

Interference Check Sample: Acceptable. Analyte recoveries for True Solution AB were within the QC limits. ICSA analyses indicated acceptable application of interelement and background corrections.

Serial Dilution: Provisional. The reviewer qualified the calcium and zinc sample results as estimated because the percent differences exceeded the QC limit. The serial dilution results were higher than the undiluted results, indicating that matrix interferences suppressed the signals for those analytes. Therefore, the calcium and zinc sample results were also qualified as low biased.

Coefficients of Variation: Provisional. The reviewer qualified as estimated the selenium results for samples MFH-L94, MFH-L97, MFH-L99, MFH-M00, MFH-M09, and MFH-M14 because coefficients of variation exceeded 20 percent.

7. **Furnace Atomic Absorption (FAA) Quality Control:** Not Applicable.

8. **Laboratory Control Sample (LCS):** Acceptable. Acceptable LCS results indicated satisfactory sample preparation and analysis.

9. **Sample Verification:** The laboratory was contacted concerning some CSF problems and minor reporting errors (see the Phone and FAX Record Logs).

10. **Other QC:**

    Field Duplicates: Acceptable. Consistent field duplicate results indicated satisfactory sampler and laboratory precision.

11. **Overall Assessment:** The data package is technically provisional with the following problems.

    The reviewer qualified the antimony, calcium, and zinc sample results because of matrix related problems.

    The reviewer qualified the aluminum sample results because of poor laboratory precision.

    The reviewer qualified six selenium results because of poor ICP precision.

INORGANIC DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the ESAT Region 6 qualifiers assigned to results in the inorganic data review process.

U Undetected at the laboratory reported detection limit (IDL).

L Reported concentration is between the IDL and the CRDL.

J Result is estimated because of outlying quality control parameters such as matrix spike, serial dilution, FAA spike recovery, etc.

R Result is unusable.

F A possibility of a false negative exists.

UC Reported concentration should be used as a raised detection limit because of apparent blank contamination.

^ High bias. Actual concentration may be lower than the concentration reported.

v Low bias. Actual concentration may be higher than the concentration reported.

DATA SUMMARY

Case No.: 25969 SDG. No.: MFHL94 Reviewer: M. FERTITTA

Laboratory: AATS Matrix: SOIL Units: mg/Kg

EPA TR #=>	MFH-L94	FLAG	MFH-L95	FLAG	MFH-L97	FLAG	MFH-L98	FLAG	MFH-L99	FLAG	COMMENTS
ALUMINUM	21600	J	22100	J	11100	J	7040	J	8850	J	
ANTIMONY	0.79	UJv	0.80	UJv	1.1	LUCJv	0.72	UJv	0.77	UJv	
ARSENIC	9.0		8.4		9.4		14.5		7.3		
BARIUM	216		303		206		89.6		200		
BERYLLIUM	1.3		1.5		0.94	L	0.51	L	0.75	L	
CADMIUM	0.78	L	0.27	U	1.3		0.39	L	0.31	L	
CALCIUM	56000	Jv	29200	Jv	54200	Jv	29600	Jv	60400	Jv	
CHROMIUM	27.0		26.0		19.3		15.5		11.7		
COBALT	15.5		18.1		12.2	L	5.9	L	8.8	L	
COPPER	204		30.9		1390		1100		279		
IRON	18100		21300		17500		11400		11600		
LEAD	33.8		26.5		57.6		35.2		30.0		
MAGNESIUM	3190		2780		3130		1210		2050		
MANGANESE	1990		2060		1460		711		1210		
MERCURY	0.05	U	0.06	U	0.11	LUC	0.06	U	0.06	U	
NICKEL	31.7		30.4		20.9		12.0		16.6		
POTASSIUM	2590		3810		1730		1260		2920		
SELENIUM	1.3	UJ	1.3	U	1.2	UJ	1.2	U	1.3	UJ	
SILVER	0.53	U	0.53	U	0.50	U	0.48	U	0.51	U	
SODIUM	346	L	344	L	244	L	258	L	404	L	
THALLIUM	1.1	U	1.2	L	1.0	L	0.96	U	1.0	U	
VANADIUM	72.2		79.8		50.1		24.2		35.2		
ZINC	101	Jv	81.9	Jv	159	Jv	69.3	Jv	125	Jv	
CYANIDE	0.40	L	0.25	L	0.25	L	0.18	L	0.30	L	
% SOLIDS	75.7		75.3		76.3		83.0		77.9		

DATA SUMMARY

Case No.: 25969 SDG. No.: MFHL94 Reviewer: M. FERTITTA

Laboratory: AATS Matrix: SOIL Units: mg/Kg

EPA TR #=>	MFH-M00	FLAG	MFH-M01	FLAG	MFH-M02	FLAG	MFH-M03	FLAG	MFH-M04	FLAG	COMMENTS
ALUMINUM	16500	J	13300	J	14800	J	15600	J	14900	J	
ANTIMONY	0.80	UJv	1.1	LUCJv	0.98	LUCJv	0.93	UJv	0.97	UJv	
ARSENIC	6.8		22.6		9.2		6.8		7.6		
BARIUM	214		206		195		139		148		
BERYLLIUM	1.1	L	0.90	L	1.1	L	0.94	L	0.98	L	
CADMIUM	0.27	U	0.85	L	0.77	L	0.42	L	0.48	L	
CALCIUM	11100	Jv	67500	Jv	60700	Jv	133000	Jv	139000	Jv	
CHROMIUM	22.7		20.4		27.1		20.9		20.5		
COBALT	13.8		10.8	L	10.5	L	8.2	L	8.6	L	
COPPER	54.7		1760		1860		105		115		
IRON	19200		16700		16200		12600		15700		
LEAD	35.3		76.5		70.0		59.7		62.2		
MAGNESIUM	1930		3020		3370		3330		3450		
MANGANESE	1400		1340		1100		897		949		
MERCURY	0.11	LUC	0.06	U	0.06	U	0.14	LUC	0.08	U	
NICKEL	21.7		18.6		20.1		20.6		21.3		
POTASSIUM	1810		1870		2050		2030		2000		
SELENIUM	1.3	UJ	1.2	U	1.3	U	1.6	U	1.6	U	
SILVER	0.53	U	0.50	U	0.53	U	0.62	U	0.64	U	
SODIUM	320	L	359	L	359	L	438	L	436	L	
THALLIUM	1.1	U	0.99	U	1.1	U	1.2	U	1.3	U	
VANADIUM	59.2		44.2		53.8		49.7		51.2		
ZINC	117	Jv	143	Jv	189	Jv	152	Jv	169	Jv	
CYANIDE	0.19	L	0.23	L	0.29	L	0.35	L	0.80		
% SOLIDS	74.9		80.7		75.0		64.2		62.1		

DATA SUMMARY

Case No.: 25969 SDG. No.: MFHL94 Reviewer: M. FERTITTA

Laboratory: AATS Matrix: SOIL Units: mg/Kg

EPA TR #=>	MFH-M05	FLAG	MFH-M06	FLAG	MFH-M07	FLAG	MFH-M08	FLAG	MFH-M09	FLAG	COMMENTS
ALUMINUM	11600	J	11800	J	12100	J	7260	J	21500	J	
ANTIMONY	0.95	LUCJv	0.84	LUCJv	0.97	LUCJv	0.97	UJv	0.90	UJv	
ARSENIC	7.6		8.0		8.9		10.9		9.8		
BARIUM	144		236		113		128		224		
BERYLLIUM	0.82	L	0.92	L	0.89	L	0.74	L	1.5	L	
CADMIUM	1.1	L	0.27	U	0.45	L	0.75	L	0.30	U	
CALCIUM	106000	Jv	35500	Jv	145000	Jv	148000	Jv	29700	Jv	
CHROMIUM	17.7		14.0		17.3		11.1		25.7		
COBALT	7.2	L	14.1		6.0	L	8.0	L	15.1		
COPPER	1580		18.0		98.4		42.7		20.0		
IRON	13000		13000		16000		13300		23600		
LEAD	73.5		16.9		30.6		107		24.6		
MAGNESIUM	5270		4000		4510		2350		2930		
MANGANESE	738		1100		634		910		1300		
MERCURY	0.06	U	0.07	U	0.07	U	0.08	U	0.08	U	
NICKEL	17.8		19.2		17.4		16.5		34.0		
POTASSIUM	1900		1400		1890		1210	L	2470		
SELENIUM	1.3	U	1.4	U	1.5	U	1.6	U	1.5	UJ	
SILVER	0.53	U	0.54	U	0.60	U	0.65	U	0.60	U	
SODIUM	442	L	380	L	481	L	605	L	383	L	
THALLIUM	1.1	L	1.1	U	1.3	L	1.3	U	1.2	U	
VANADIUM	35.8		42.0		41.9		33.5		79.6		
ZINC	126	Jv	90.0	Jv	169	Jv	160	Jv	88.0	Jv	
CYANIDE	0.22	L	0.14	L	0.22	L	0.33	L	0.22	L	
% SOLIDS	75.9		73.9		66.5		61.7		66.6		

DATA SUMMARY

Case No.: 25969 SDG. No.: MFHL94 Reviewer: M. FERTITTA

Laboratory: AATS Matrix: SOIL Units: mg/Kg

EPA TR #=>	MFH-M10	FLAG	MFH-M11	FLAG	MFH-M13	FLAG	MFH-M14	FLAG	FLAG	FLAG	COMMENTS
ALUMINUM	15800	J	2540	J	10500	J	6960	J			
ANTIMONY	0.76	UJv	0.79	LUCJv	0.82	UJv	2.4	LUCJv			
ARSENIC	6.6		0.98	LJv	4.3	Jv	3.7	Jv			
BARIUM	129		58.8		71.0		89.9				
BERYLLIUM	0.86	L	0.31	L	0.72	L	0.54	L			
CADMIUM	0.25	U	0.25	U	0.27	U	0.41	L			
CALCIUM	48400	Jv	16500	Jv	232000	Jv	239000	Jv			
CHROMIUM	18.3		8.2		14.1		11.4				
COBALT	5.9	L	4.0	L	5.3	L	5.2	L			
COPPER	22.9		10.5		11.6		20.6				
IRON	12900		5940		12500		12700				
LEAD	13.6		4.9		14.6		27.9				
MAGNESIUM	2850		689	L	2410		2180				
MANGANESE	494		310		541		544				
MERCURY	0.06	U	0.06	U	0.13	LUC	0.15	UC			
NICKEL	15.1		5.4	L	14.8		11.4	L			
POTASSIUM	1810		510	L	2210		2590				
SELENIUM	1.3	U	1.2	U	1.4	U	2.6	J			
SILVER	0.51	U	0.49	U	0.55	U	0.61	U			
SODIUM	352	L	256	L	526	L	511	L			
THALLIUM	1.1	L	0.98	U	1.1	U	1.9	L			
VANADIUM	39.6		14.1		34.9		23.3				
ZINC	46.7	Jv	21.7	Jv	51.9	Jv	202	Jv			
CYANIDE	0.19	L	0.05	L	0.27	LUC	0.12	LUC			
% SOLIDS	78.6		81.3		73.0		65.3				

INORGANIC/ORGANIC COMPLETE SDG FILE (CSF) INVENTORY CHECKLIST

Case No. 25969 SDG No. MFHL94 SDG Nos. To Follow _____ SAS No. _____ Date Rec 02/17/98

EPA Lab ID: AATS

Lab Location: Broken Arrow, OK

Region: 6 Audit No.: 25969/MFHL94

Re_Submitted CSF? Yes _____ No X

Box No(s): 1

COMMENTS:

3 The reviewer made some minor pagination corrections on the Form.

Over for additional comments.

ORIGINALS	YES	NO	N/A
CUSTODY SEALS			
1. Present on package?	X		
2. Intact upon receipt?	X		
FORM DC-2			
3. Numbering scheme accurate?		X	
4. Are enclosed documents listed?	X		
5. Are listed documents enclosed?	X		
FORM DC-1			
6. Present?	X		
7. Complete?	X		
8. Accurate?	X		
CHAIN-OF-CUSTODY RECORD(s)			
9. Signed?	X		
10. Dated?	X		
TRAFFIC REPORT(s) PACKING LIST(s)			
11. Signed?	X		
12. Dated?	X		
AIRBILLS/AIRBILL STICKER			
13. Present?	X		
14. Signed?	X		
15. Dated?	X		
SAMPLE TAGS			
16. Does DC-1 list tags as being included?	X		
17. Present?	X		
OTHER DOCUMENTS			
18. Complete?	X		
19. Legible?	X		
20. Original?		X	
20a. If "NO", does the copy indicate where original documents are located?	X		

Audited by: Michael J. Fertitta Michael J. Fertitta/ ESAT Data Reviewer Date 02/19/98

Audited by: _____ _____ Date _____

Audited by: _____ _____ Date _____

Signature Printed Name/Title

TO BE COMPLETED BY CEAT

Date Recvd by CEAT: _____ Date Entered: _____ Date Reviewed: _____

Entered by: _____ _____

Reviewed by: _____ _____

Signature Printed Name/Title

DC-2___

Rev. 3/97

In Reference To
Case 25969 SDG MFHL94
ESAT File No. I-2170

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log

Date of FAX:	February 23, 1998
Laboratory Name:	AATS
Lab Contact:	Deborah J. Inman
Region:	6
Regional Contact:	Michael J. Fertitta-ESAT
FAX initiated by:	_____Laboratory ___X___Region

In reference to data for the following samples:

All samples in the SDG.

Summary of Questions/Issues:

Form 14 (page 74) was missing the ICP analyses found on raw data pages 121 to 139.

Resolution:

Ms. Inman will FAX the Form 14 as soon as possible. The original is expected to be in the laboratory response to CCS.

Michael J. Fertitta — Signature

02/23/98 — Date

Distribution: (1) Lab Copy, (2) Region Copy

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

FAX Record Log

Date of FAX:	February 26, 1998
Laboratory Name:	AATS
Lab Contact:	Deborah J. Inman
Region:	6
Regional Contact:	Michael J. Fertitta-ESAT
FAX initiated by:	Laboratory X Region

In reference to data for the following samples:

All samples in the SDG.

Summary of Questions/Issues:

A. CSF Deliverables

1. The sample cooler temperature (pages 316 to 317) was not recorded in the SDG Narrative (pages 343 to 344) (ILM04.0, A-6, last paragraph of A.I.5). Please provide this information in the narrative for future cases.

2. The sample receipt date on Form 1 for sample MFH-M10 (page 18) should be 01/15/98, not 01/14/98. Please submit this correction unless it has already been submitted in response to CCS.

B. ICP

1. Thank you for the FAX'd corrections to page 74 of Form 14. At this time, please submit the original with the additional corrections addressed below.

2. The raw data concentrations would support page 78 of Form 14 that reports that the zinc analyses should be used from the 02/02/98 ICP sequence for samples MFH-M10, MFH-M11, and MFH-M13. This would make the following corrections necessary.

   a. The zinc concentration for sample MFH-M10 should be 46.7 mg/Kg, not 65.2 mg/Kg. Please correct and resubmit the Form 1 (page 18).

   b. The zinc concentration for sample MFH-M14 should be 202 mg/Kg, not 254 mg/Kg. Please correct and resubmit the Form 1 (page 21).

c. Form 14, page 74: The "X" should be removed from zinc for sample MFH-M10, and an "X" should be added to zinc for sample MFH-M14. Please resubmit the corrected Form 14.

3. The ICP standard on page 147 should be "S", not "S0". Please resubmit pages 146/147 (double-sided) with the requested correction unless they have already been submitted in response to CCS.

The EPA expects the laboratory to look into the above items and submit the data within 7 days to:

Attn: Mahmoud El-Feky - U.S. EPA
10625 Fallstone Road
Houston, TX 77099

If you have any questions, please contact me at (713) 988-2993.

Michael J. Fertitta — 02/26/98
Signature — Date

Distribution: (1) Lab Copy, (2) Region Copy